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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,817	12/20/2000	Kantaro Miyano	P20402	4059

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GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

LEE, JOHN J

ART UNIT	PAPER NUMBER
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2684

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/739,817	MIYANO ET AL.	
	Examiner	Art Unit	
	JOHN J LEE	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-22, 24-27 and 29-33 is/are rejected.
- 7) ☒ Claim(s) 23, 28, 34 and 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 19-22, 24-27, and 29-32** are rejected under 35 U.S.C. 102(e) as being anticipated by Shapira (US Patent number 6,697,641).

Regarding **claim 19**, Shapira discloses that a radio transmission apparatus (Fig. 5 and column 2, lines 40 – 67). Shapira teaches that an antenna (Fig. 5) having first (P1 in Fig. 5) and second linear polarization antenna (P2 in Fig. 5) elements perpendicular to each other (Fig. 5, 10, column 9, lines 36 – 67, and column 13, lines 21 – 49, where teaches a transmission system having two linear polarization antennas that orthogonal to each other). Shapira teaches that modulator (inherently digital wireless system has a modulator incorporating with interleaver) that modulates transmission data to output a modulated signal (Fig. 10, 15 and column 14, lines 11 – 35, where teaches digital wireless system incorporates an interleaver in digital modulation and coding). Shapira teaches that a phase controller (control circuit in Fig. 5) that controls a phase difference between modulated signals transmitted individually from said first (P1 in Fig. 5) and second linear polarization antenna (P2 in Fig. 5) elements to be one of 0 degrees and 180 degrees according to a value of the transmission data (according to a value of a spreading

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code) (Fig. 5, column 9, lines 36 – 67, and column 3, lines 15 – 51, where teaches control circuit controls a phase difference between RF modulation signals transmitted from the transmitting antennas and transmit chain is split into two branches that operate at a fixed power with using a spreading process, accordingly, the phase of one of the branches is switched between 0 degree and 180 degrees).

Regarding **claims 20 and 25**, Shapira teaches that first (660 in Fig. 12) and second (662 in Fig. 12) linear polarization antenna elements are positioned with longitudinal directions thereof crossing (Fig. 12, 13 and column 15, lines 24 – 52, where teaches first and second linear polarization antennas are positioned crossing each other).

Regarding **claims 21 and 26**, Shapira teaches that the first and second linear polarization antenna elements are positioned at a spaced interval on a plane with a longitudinal relationship between said first and second linear polarization elements indicative of twisted positions (Fig. 12, 13 and column 15, lines 24 – 52, where teaches first and second linear polarization antennas are positioned spaced interval and crossing each other such that twisted position).

Regarding **claims 22 and 27**, Shapira teaches that the first and second linear polarization antenna elements are positioned at a spaced interval with a longitudinal relationship between said first and second linear polarization elements indicative of having an angle (Fig. 12, 13 and column 15, lines 24 – 52, where teaches first and second linear polarization antennas are positioned spaced interval and crossing each other with having angle).

Regarding **claim 24**, Shapira discloses all the limitation, as discussed in claim 19. Furthermore, Shapira further discloses that a spreader (splitter in Fig. 5) that spreads said modulated signal and outputs a spread signal (Fig. 10 and column 14, lines 11 – 39, where teaches splitter spreads spreading code/modulating signals).

Regarding **claim 29**, Shapira discloses all the limitation, as discussed in claims 19 and 24. Furthermore, Shapira further discloses that a switch that sets a destination of said modulated signal to one of said first element and said second antenna element according to a value of said of said transmission data (Fig. 5, column 9, lines 36 – 67, and column 3, lines 15 – 51, where teaches control circuit controls a phase difference between RF modulation signals transmitted from the transmitting antennas and transmit chain is split into two branches by a switch according to a value of transmission data, accordingly, the phase of one of the branches is switched between 0 degree and 180 degrees).

Regarding **claim 30**, Shapira discloses all the limitation, as discussed in claims 24 and 29.

Regarding **claim 31**, Shapira discloses all the limitation, as discussed in claims 19 and 29.

Regarding **claim 32**, Shapira discloses all the limitation, as discussed in claims 24 and 29.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claim 33** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shapira in view of Weerackody (US patent number 5,305,353).

Regarding **claim 33**, Shapira discloses all the limitation, as discussed in claim 19. Furthermore, Shapira further discloses that an electric field strength detector (detecting circuit in Fig. 5) that detects a received electric field strength (the strength of received signals from mobile station) of said first and second signal (column 9, lines 36 – column 10, lines 44 and Fig. 5, where teaches the detecting signal strength of received signal obtained from the diversity antennas, such that first and second antenna. Without a detector for received signal strength, the receiver cannot operate).

Shapira does not specifically disclose the limitation “determiner that performs a data determination by associating a magnitude of said received electric field strength of said first signal transmitted in said predetermined polarization plane and received electric field strength of second signal transmitted in said different polarization plan with data”. However, Weerackody discloses the limitation “determiner that performs a data determination by associating a magnitude of said received electric field strength of said first signal transmitted in said predetermined polarization plane and received electric field strength of second signal transmitted in said different polarization plan with data (column

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3, lines 49 – column 4, lines 33 and Fig. 3, where teaches when the receiver received the weakness of received signal energy that communicated change slowly, the receiver determines a technique (providing a channel code symbols to use to antennas) for each antenna with different polarization plan can be used to reduce the deep fades). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of the Shapira as taught by Weerackody. The motivation does so would be to enhance data signal adaptability by plurality of antenna with different polarization in wireless communication antenna system.

Allowable Subject Matter

5. Claims 23, 28, 34, and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to disclose the limitation “the determiner performs and data determination on as-is basis at a time of a first electric field, while with respect to data at a time of a second electric field strength, weaker than said first electric field strength, said data at the time of said first electric field strength is inverted to make said determination, and an X-NOR gate receiving as its input an output of the D-flip flop and the judged result and a transmission signal by a reference signal to multiply a signal that inverts a polarity of said transmission signal corresponding to said reference signal” as specified in the claims.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bleret et al. (US Patent number 6,300,900) discloses Antenna for Transmitting and/or Receiving Signals with Rectilinear Polarization.

Information regarding...Patent Application Information Retrieval (PAIR) system... at 866-217-9197 (toll-free)."

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label
"PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

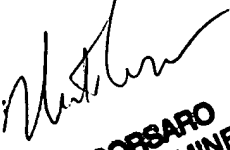
Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is **(571) 272-7880**. He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, **Nay Aung Maung**, can be reached on **(571) 272-7882**. Any inquiry of a general nature or

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relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

J.L
April 4, 2005

John J Lee


NICK CORSARO
PRIMARY EXAMINER